

## P E T I T I O N

To the Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Your Petitioners, BRUCE KREIKEMEIER, a citizen of the United States and a resident of the State of Nebraska, whose post office address is 1046 D Road, West Point, Nebraska 68788; MARV SCHULZ, a citizen of the United States and a resident of the State of Nebraska, whose post office address is 4929 South 90th Street, Omaha, Nebraska 68127; CRAIG MALSAM, a citizen of the United States and a resident of the State of Nebraska, whose post office address is 17914 Shirley Circle, Omaha, Nebraska 68130; and HECTOR HAGET, a citizen of the United States and a resident of the State of Nebraska, whose post office address is 17914 Pine Street, Omaha, Nebraska 68130, pray that Letters Patent may be granted to them for the improvement in a

### METHOD AND MEANS FOR READING THE STATUS OF AND CONTROLLING IRRIGATION COMPONENTS

as set forth in the following specification.

#### BACKGROUND OF THE INVENTION

##### 1. FIELD OF THE INVENTION

This invention relates to a method and means for reading the status of and remotely controlling irrigation components and ancillary equipment including, but not limited to, center pivots, linears, drip sectors, pumps, engine generators, valves, pressure sensors, etc., by means of a remote, handheld controller.

##### 2. DESCRIPTION OF THE RELATED ART

Devices have been previously provided for the remote control of irrigation systems and components thereof. One prior art device for remotely controlling irrigation systems is the base station control. The base station control utilizes RF telemetry or

1 cell phone telemetry to read the status of and control irrigation components from a  
personal computer (PC). The disadvantage of this method is that the user needs to be  
at the PC. Situations arise whereby after viewing the operation of the irrigation  
components, immediate action is needed. The base station control system requires the  
5 user to go back to the PC, which may be located miles away, for remote control  
capability.

A second type of system is known as the remote mount control panel system.  
Remote mount control panels consist of mounting the control panels of the components  
at a location in the field away from the components to thereby provide relatively easy  
10 access to the control panels. This requires burying the power and control wires in the  
field. This method also limits access to the control panels to one particular location, that  
being the location of the remote mounted control panel.

#### SUMMARY OF THE INVENTION

15 A method and means is disclosed for reading the status of and remotely  
controlling irrigation components and ancillary equipment. The means for remotely  
reading the status of and controlling irrigation components and ancillary equipment  
comprises a remote user interface (RUI) which is a separate unit from the irrigation  
component controller. The RUI consists of a handheld display and keypad. The RUI  
has the ability to communicate with and control the irrigation components using built-in  
20 wireless telemetry technology. The RUI allows the user to read the status of,  
communicate with, and control irrigation components from any location in the field,  
without requiring the user to be at the irrigation component controls or at a specific  
location in the field. The method of this invention enables a person to determine the  
status of irrigation components and ancillary equipment and to control the operation  
25 thereof, which comprises the steps of: (1) providing a handheld wireless RUI; (2)

utilizing the RUI to read the status of the irrigation components and ancillary equipment; and (3) utilizing the RUI to communicate with the irrigation components and ancillary equipment for controlling the operation thereof.

It is therefore a principal object of the invention to provide a method and means for remotely reading the status of and controlling irrigation components and ancillary equipment by means of a remote user interface (RUI).

Still another object of the invention is to provide a remote user interface for irrigation components which is a separate unit from the irrigation component controller.

Still another object of the invention is to provide a remote user interface for irrigation components which consists of a handheld display and keypad having the ability to communicate with the irrigation components and control the same through the use of built-in wireless telemetry technology.

Still another object of the invention is to provide a method and means for remotely controlling irrigation components and ancillary equipment which allows the user to read the status of, communicate with, and control irrigation components from any location in the field without requiring the user to be at the irrigation component controls or at a specific location in the field.

These and other objects will be apparent to those skilled in the art.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates the RUI of this invention being employed by a user to read the status of irrigation components and ancillary equipment to enable the user to control the operation thereof.

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings, the numerals 10 and 12 refer to irrigation components such as center pivot irrigation systems including ancillary equipment 13. The method and

1 means of this invention is used to control irrigation components and ancillary equipment  
which may be center pivots, linear systems, drip sectors, pumps, engine generators,  
valves, pressure sensors, etc.

5 In an effort to overcome the shortcomings of the base station control systems  
and the remote mount control panels of the prior art, a remote user interface (RUI) 14 is  
provided which includes a display 16 and a keypad 18, as seen in Figure 1. The RUI is  
a handheld device to enable the user to utilize the same in a convenient manner. The  
RUI 14 has the capability of communicating with and controlling the irrigation  
10 components and ancillary equipment using conventional built-in wireless telemetry  
technology. Through the use of the RUI, the user may remotely read or determine the  
status of, communicate with, and control the irrigation components and ancillary  
equipment from any location in the field, without requiring the user to be at the irrigation  
component controls or at a specific location in the field.

15 Thus, it can be appreciated that if the user visits a site wherein an irrigation  
system is located, and visually determines that the system is functioning improperly, the  
user may use the RUI 14 to determine the status of, communicate with, and control the  
irrigation components of the system from any location in the field. Further, depending  
upon the range of the RUI, the user could determine the status of, communicate with,  
and control the irrigation components from a location other than in or adjacent to the  
field. However, it is contemplated that the device will normally be used by the user at  
20 the particular system location.

Thus it can be seen that the invention accomplishes at least all of its stated  
objectives.